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Typical Stars.

Type	I.	Canis Minor β	Mag. 3
,,	I.	Leo θ	,, 3
,,	I.	,, δ	,, 3
,,	I.	,, ζ	,, 3
,,	II.	,, ε	,, 3
,,	III.	Hercules α...	,, 3

Diameters of Jupiter measured with the Filar and Double-image Micrometers at the Royal Observatory, Greenwich.

(*Communicated by the Astronomer Royal.*)

In 1895 June the results of the measures of *Jupiter's* diameters, made with a bi-filar micrometer attached to the 28-inch refractor, were communicated to the Society. At that time it was intimated that a few measures had also been made with the double-image micrometer, but that the results could not then be given, as the value of the micrometer-screw had not been ascertained. The observations have been continued, and the following are the results.

The method adopted was first to obtain a set of measures with the filar micrometer, and then a set with the double-image micrometer on the same evening. The 28-inch is well adapted for this, as the breech end is arranged for either direct or diagonal view by means of a plane mirror, which can be readily inserted or withdrawn. The bi-filar micrometer was mounted for direct view, and the double-image for diagonal view, by use of the plane mirror.

The adopted value of 1 rev. of the double-image micrometer is 4″·151, as ascertained by transits of a polar star on 1895 August 9.

The observations were made by Mr. Dyson and Mr. Lewis, and the results have been kept separate. Both observers made a few measures with a blue shade over the eye-piece, which made measuring easier.

The observations have all been reduced to mean distance 5·2028, and the correction for phase has been taken from Mr. Marth's Ephemeris in the *Monthly Notices.*

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Measures by Mr. Dyson.

		Equatorial Diameter.			Polar Diam.
		Filar Micrometer.	Double-image Micrometer.	Filar − D. I.	Filar Micrometer.
1896.		″	″	″	″
Feb.	6	38·455	37·837	+0·618	...
	11	38·257	37·778	+ ·479	...
Mar.	2	37·974	37·758	+ ·216	...
	23	38·368	38·353	+ ·015	35·926
	25	38·380	38·224	+ ·156	36·128
	30	38·601	38·697	− ·096	35·803
Apr.	15	38·335	38·398	− ·063	36·129
Mean		38·339	38·149	+ ·190	35·997

Measures by Mr. Lewis.

		Equatorial Diameter.			Polar Diameter.		
		Filar Micrometer.	Double-image Micrometer.	Filar − D. I.	Filar Micrometer.	Double-image Micrometer.	Filar − D. I.
1896.		″	″	″	″	″	″
Feb.	4	38·153	37·310	+0·843	...	...	...
	6	·358	·235	1·123	...	...	...
	10	·280	·688	0·592	...	...	...
	18	·190	·579	0·611	...	...	...
	22	·395	·832	0·563	...	...	...
Mar.	3	·439	·431	1·038	35·957	35·249	+0·708
	5	...	...	...	36·030	...	...
	27	·076	·630	0·446	36·170	35·176	·994
	31	·138	·242	0·896	35·883	35·136	·746
Apr.	3	·051	·366	0·685	36·172	35·413	·759
	8	·212	·355	0·857	35·881	35·541	·340
	18	·115	·350	+0·765	36·029	35·655	+ ·374
Mean		38·219	37·456	+0·763	36·017	35·362	+0·655

If we compare the measures of the equatorial and polar diameters taken with the same micrometer it is clearly shown that the polar diameter is much more easy to measure; a fact which was felt during the observations. Of course this is in part due to the clock, and in part to the imperfection of the limb due to phase, this latter defect being very apparent where the east and west limbs were brought into contact in the double-image micrometer.

It will be seen that the filar micrometer not only gives more consistent results, but also shows less personality, the measures

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of the two observers with it being in close agreement, while there is a large systematic difference between the measures made with the double-image micrometer.

Using, in addition to the observations above, three sets of observations made by Mr. Lewis in 1895, we get

		Filar Micrometer — Double-image Micrometer. Equatorial Diam.	Polar Diam.
		″	″
Mr. Dyson, 1896	... ...	+0·190	...
„ Lewis, 1896	... ...	+0·763	+0·655
„ „ 1895	... ...	+0·912	...
Weighted Mean	... ...	+0·593	+0·655

or combining both diameters :

$$\text{Filar} - \text{D. I.} = +0''\!\cdot\!609$$

The following comparison of the values obtained by different methods may be of interest :—

Heliometer.	Equat. Diam.	Polar Diam.	Double-image.	Equat. Diam.	Polar Diam.	Filar Micrometer.	Equat. Diam.	Polar Diam.
	″	″		″	″		″	″
Bessel	37·60	35·21	Kaiser	37·55	35·15	W. Struve	38·33	35·54
Winnecke	37·43	35·11	Main	37·91	35·67	Secchi	38·35	35·96
Johnson	37·38	35·13	Dyson	38·15	...	Barnard	38·52	36·11
Main	37·00	35·00	Lewis	37·46	35·36	Dyson and Lewis	38·27	36·01
	37·35	35·11		37·77	35·39		38·37	35·90

Royal Observatory, Greenwich :
1896 *May* 5.

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Observations of Comets a 1896 (*Perrine-Lamp*) *and b* 1896 (*Swift*), *made at the Royal Observatory, Greenwich.*

(*Communicated by the Astronomer Royal.*)

The observations were made with the Sheepshanks' Equatorial, aperture 6·7 inches, by taking transits over two cross-wires at right angles to each other, and each inclined 45° to the parallel of declination. Magnifying power 55.

1896.	Greenwich Mean Solar Time. d h m s	Observer.	☄−✱R.A. m s	Corr. for Refraction. s	Log factor of Parallax.	☄−✱N.P.D. ′ ″	Corr. for Refraction. ″	Log factor of Parallax.	No. of Comps.	Apparent R.A. of ☄ h m s	Apparent N.P.D. of ☄ ° ′ ″	Comp. Star.
					Observations of Comet a 1896.							
Apr.	12 9 4 2	B.	+0 48·25	+0·01	9·6870	−10 55·9	−0·1	0·7119	4	4 34 2·93	49 10 8·5	*a*
	13 9 9 7	„	+2 14·33	0·00	9·6862	− 4 19·3	−0·1	0·7227	4	4 35 28·99	49 16 45·2	*a*
					Observations of Comet b 1896.							
Apr.	20 8 17 41	B.	+0 33·98	−0·06	9·6140	+ 8 43·4	+0·5	0·8153	2	...	...	*b*
	20 8 20 13	„	−0 14·44	−0·02	9·6129	+ 2 35·4	+0·3	0·8174	2	3 34 42·22	61 50 20·4	*c*
	20 8 24 13	A. C.	−0 14·39	−0·02	9·6115	+ 2 0·8	+0·2	0·8201	4	3 34 42·27	61 49 45·7	*c*
	20 8 25 15	„	−1 8·61	+0·10	9·6113	−11 41·0	−1·0	0·8206	1	3 34 41·76	61 49 48·4	*d*
	21 8 32 51	„	+1 53·33	+0·04	9·6164	− 6 4·7	−0·5	0·8240	6	3 32 55·98	59 7 12·6	*e*
	23 8 52 45	H.	+3 14·34	+0·02	9·6206	− 3 22·8	−0·4	0·8362	7	3 28 21·37	53 48 45·4	*f*
	26 8 45 38	B.	−1 0·63	+0·05	9·6554	−13 14·5	−1·0	0·8276	4	3 18 51·46	46 29 7·9	*g*
	26 8 45 38	„	−2 38·68	+0·03	9·6554	− 7 14·3	−0·6	0·8276	4	3 18 51·58	46 29 5·8	*h*
	26 9 6 1	A. C.	−2 41·38	+0·05	9·6331	− 9 7·2	−1·0	0·8467	2	3 18 48·90	46 27 12·5	*h*